

CLAIMS

What is claimed is:

1. A content addressable memory (CAM) system comprising:
at least one CAM entry comprising a plurality of CAM fields;
at least one input selector that controls access to the plurality of CAM fields, such that retrieval of a subset of the plurality of CAM fields is selectively enabled; and
a match evaluator that compares an enabled subset of CAM fields to a search value.
2. The system of claim 1, the plurality of CAM fields comprising at least one CAM field associated with a physical address and at least one CAM field associated with a virtual address.
3. The system of claim 2, the at least one input selector comprising a plurality of input selector components, a given input selector component enabling access to one of a CAM field associated with the physical address and a CAM field associated with the virtual address.
4. The system of claim 1, the match evaluator comprising at least one pull-down field effect transistor.
5. The system of claim 1, the at least one input selector comprising at least one multiplexer.
6. The system of claim 1, further comprising a driver that provides a control input to the input selector and provides a given search value to the match evaluator.
7. A memory cache system comprising the system of claim 1.
8. A processor assembly comprising the memory cache system of claim 7.

9. A translation look-aside buffer assembly comprising:
a first set of memory storage cells associated with a first field;
a second set of memory storage cells associated with a second field;
and
at least one input selector that selects between the first and second set of memory storage cells to provide one of the first field and the second field.
10. The assembly of claim 9, further comprising a match evaluator that receives data from the provided fields and compares the data to a search value to determine if the search value resides in a cache.
11. The assembly of claim 10, further comprising a driver that provides the search value to the match comparator.
12. The assembly of claim 9, the first field representing a virtual memory address and the second field representing a physical memory address.
13. The assembly of claim 9, the at least one input selector comprising a plurality of input selectors, each input selector being associated with a cell from the first set and a cell from the second set, the plurality of input selectors being controlled by a common enable signal.
14. The assembly of claim 13, the plurality of input selectors comprising a plurality of multiplexers.
15. The assembly of claim 9, further comprising a driver that provides control input to the at least one input selector.
16. A method for selecting a search mode associated with a content addressable memory system (CAM), the method comprising:
selecting between a virtual address mode and a physical address mode;
enabling access to a stored physical address associated with the CAM if the physical address mode is selected;

enabling access to a stored virtual address associated with the CAM if the virtual address mode is selected; and
comparing the enabled address to a search value.

17. The method of claim 16, the selecting comprising configuring a plurality of multiplexers with a common enable signal to one of a virtual address mode and a physical address mode.

18. The method of claim 16, the comparing of the enabled address to a search value comprising driving a pull-down field effect transistor (FET) with an exclusive-OR (XOR) gate receiving respective bits of the enabled address and the search value.

19. A method of searching a content addressable memory (CAM) comprising:
selecting a first CAM field from a memory entry comprising at least a first CAM field and a second CAM field; and
enabling access between comparison logic associated with the CAM and the selected first CAM field.

20. The method of claim 19, the first CAM field comprising one of a virtual address and an physical address and the second CAM field comprising the other of the virtual address and the physical address.

21. The method of claim 19, the selecting of a first CAM field comprising providing a control signal to one or more input selectors.

22. A system for searching a content accessible memory (CAM), comprising:
means for selectively enabling access to a plurality of CAM fields, such that a subset of the CAM fields can be enabled;
means for comparing the enabled subset of CAM fields to a search value.

23. The system of claim 22, the means for selectively enabling comprising means for selecting the subset of CAM fields according to an associated control signal.

24. The system of claim 22, at least one of the plurality of CAM fields representing a virtual address and at least one of the plurality of CAM fields representing a physical address.